



Cooke's Hollow Feasibility Study and Preliminary Design

Town of Arlington, MA
Public Meeting #2
June 14, 2023

HATCH

Agenda

1. PROJECT OVERVIEW

- Project Team
- Project Goals and Objectives
- Project Timeline

2. PRESENTATION

- Existing Conditions / Site Analysis
- Conceptual Design Elements

3. COMMUNITY FEEDBACK

- Public Discussion and Comment

4. CLOSING REMARKS + NEXT STEPS

Project Team

- **DAVID MORGAN (TOWN OF ARLINGTON)** – Town Project Manager
- **DUKE BITSKO (HATCH)** - Director of Design
- **ANDREW KEEL (HATCH)** - Landscape Architect + Project Manager
- **STAKEHOLDERS:**
 - Arlington Conservation Commission
 - Cusack Terrace Residents
 - Arlington Police Department
 - Eversource
 - Arlington Garden Club
 - Neighbors
 - Arlington Catholic High School River

Questions and Comments

Please take notes and save questions and comments for discussion following the presentation.

We will have a plan view screen share to help facilitate feedback and document comments.

THANK YOU!

How to provide feedback

- This presentation will be recorded and posted on the Town website.

- Town of Arlington Contact:
DMORGAN@TOWN.ARLINGTON.MA.US

- For more information and a project survey visit:

[Town Plans to Revitalize Cooke's Hollow | Planning News and Notices | Town of Arlington \(arlingtonma.gov\)](#)

<https://www.arlingtonma.gov/Home/Components/News/News/13341/2651?backlist=%2fdepartments%2fplanning-community-development>

Cooke's Hollow Project Goals and Objectives

1. Data Gathering:

Evaluate existing conditions and site analysis data to identify potential opportunities for improvements with emphasis on ecological integrity and climate resilience.

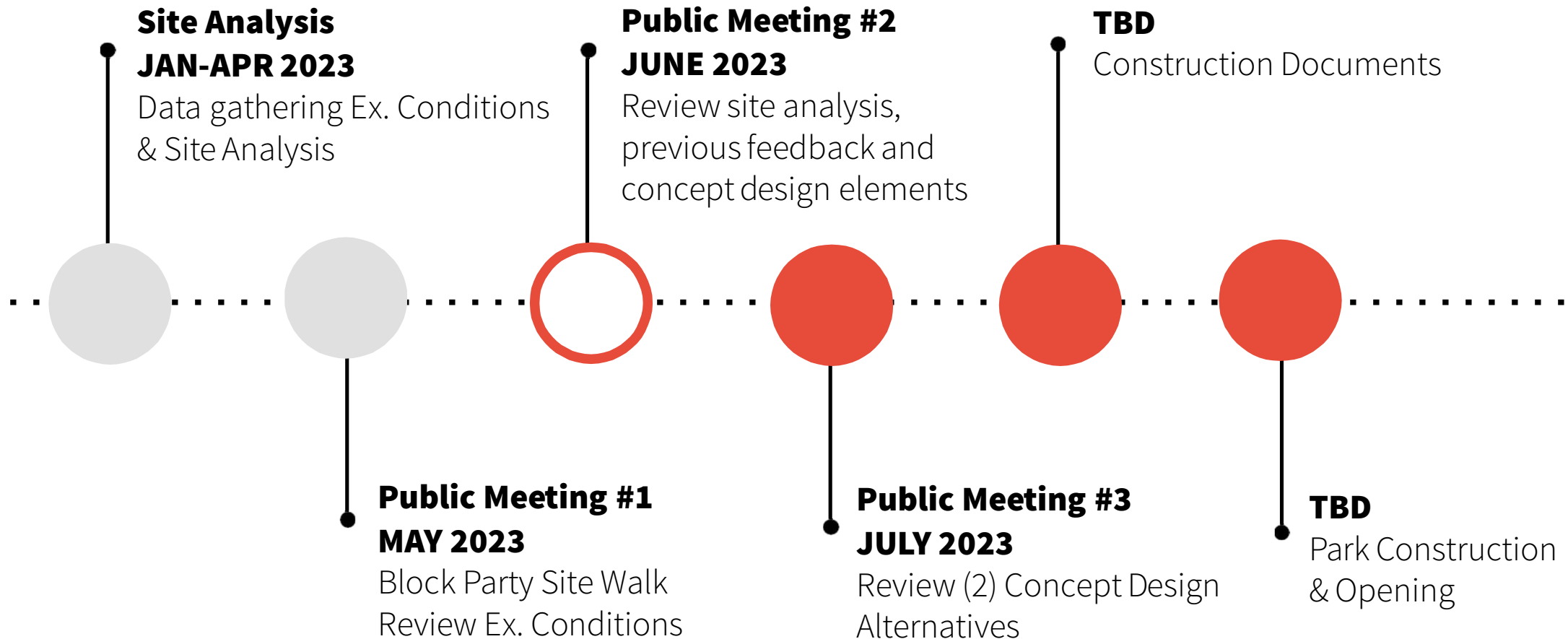
2. Community Feedback

Engage community stakeholders to solicit feedback to inform preliminary design concepts.

3. Feasibility Study and Preliminary Design

Use data and feedback to identify and propose conceptual design opportunities with a focus towards environmentally sustainable planning and engineering approaches.

Project Timeline



Public Meeting #1 – May Block Party



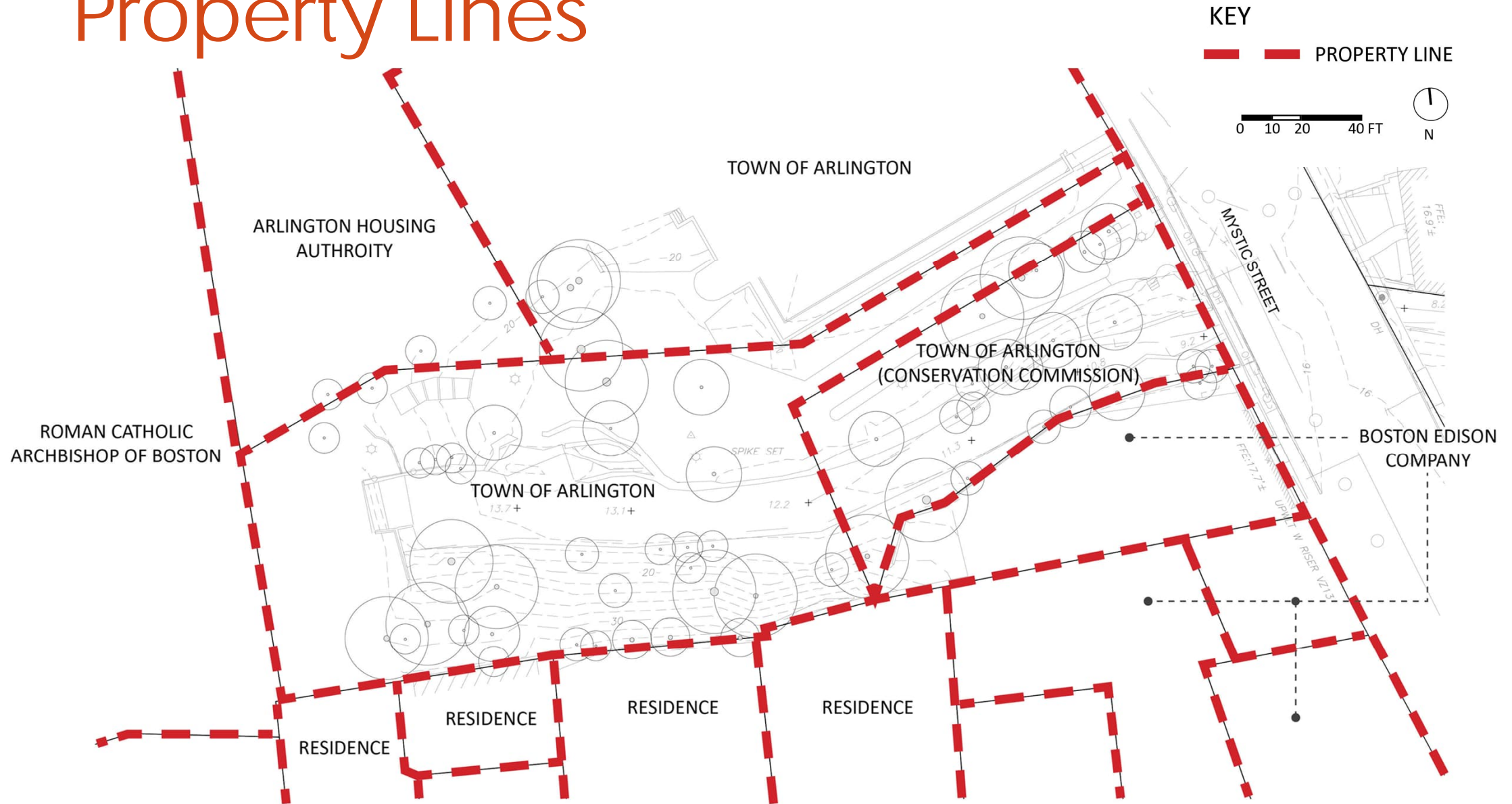
Public Meeting #2 – Goals and Objectives

1. Review existing conditions and site analysis data (ecological and cultural).
2. Review preliminary concept design elements.
3. Open discussion to garner community feedback on preliminary concept design elements.

Project Location



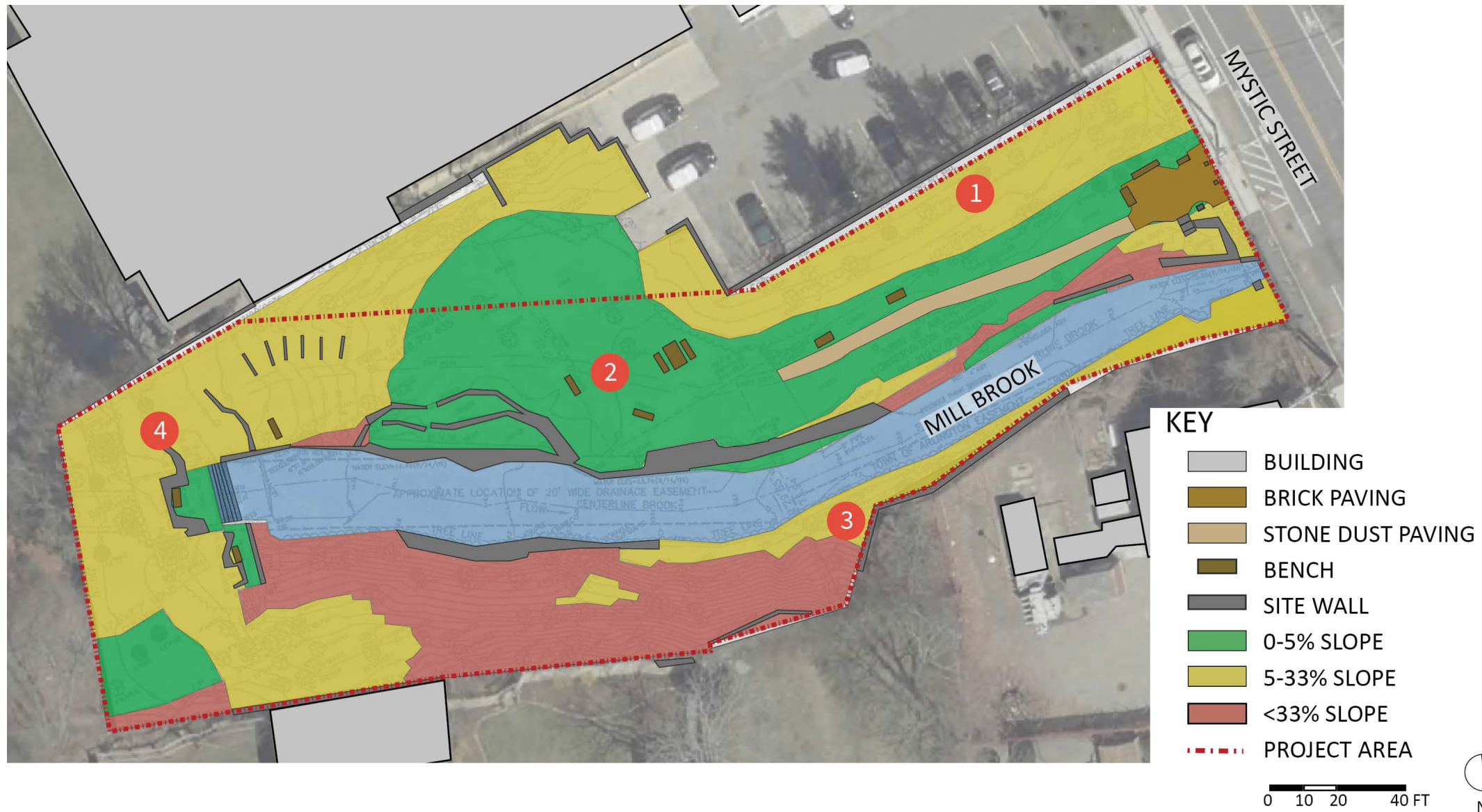
Property Lines



Existing Conditions Plan



Site Slope Plan



Site Slope Photos



1 Parking Lot Boundary



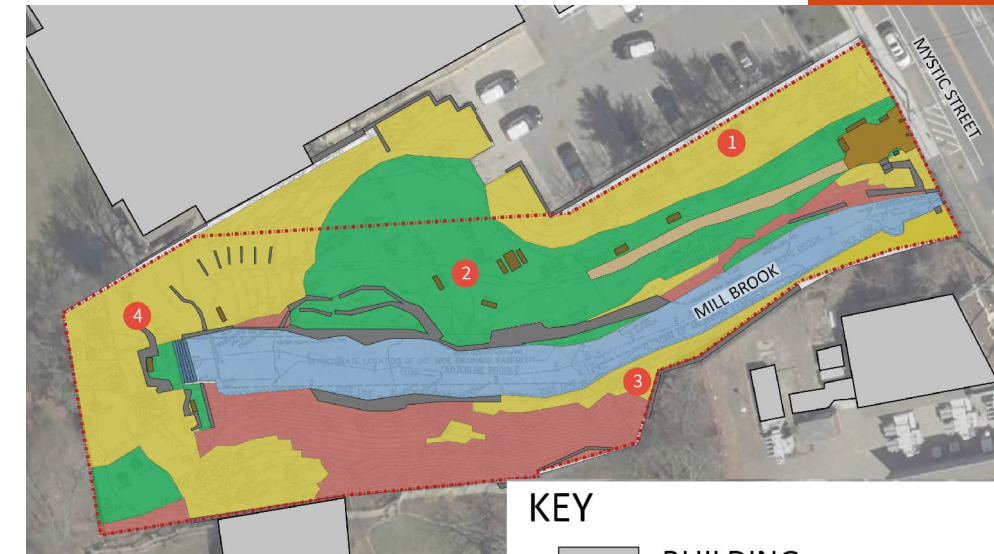
3 Steep Slope (South)



2 Level Path Area within Floodplain



4 Flat Area Above Falls



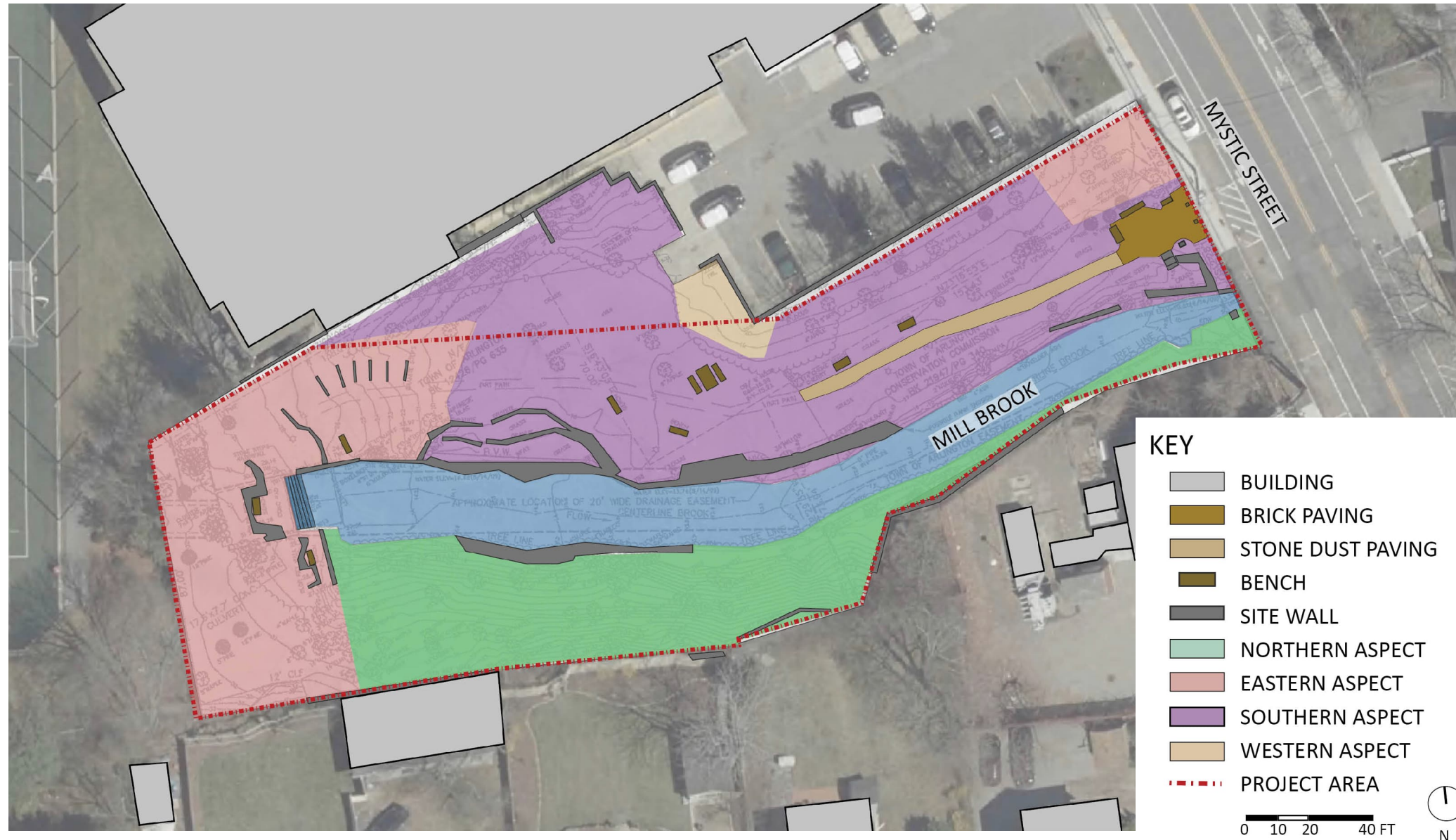
KEY

- BUILDING
- BRICK PAVING
- STONE DUST PAVING
- BENCH
- SITE WALL
- 0-5% SLOPE
- 5-33% SLOPE
- <33% SLOPE
- PROJECT AREA

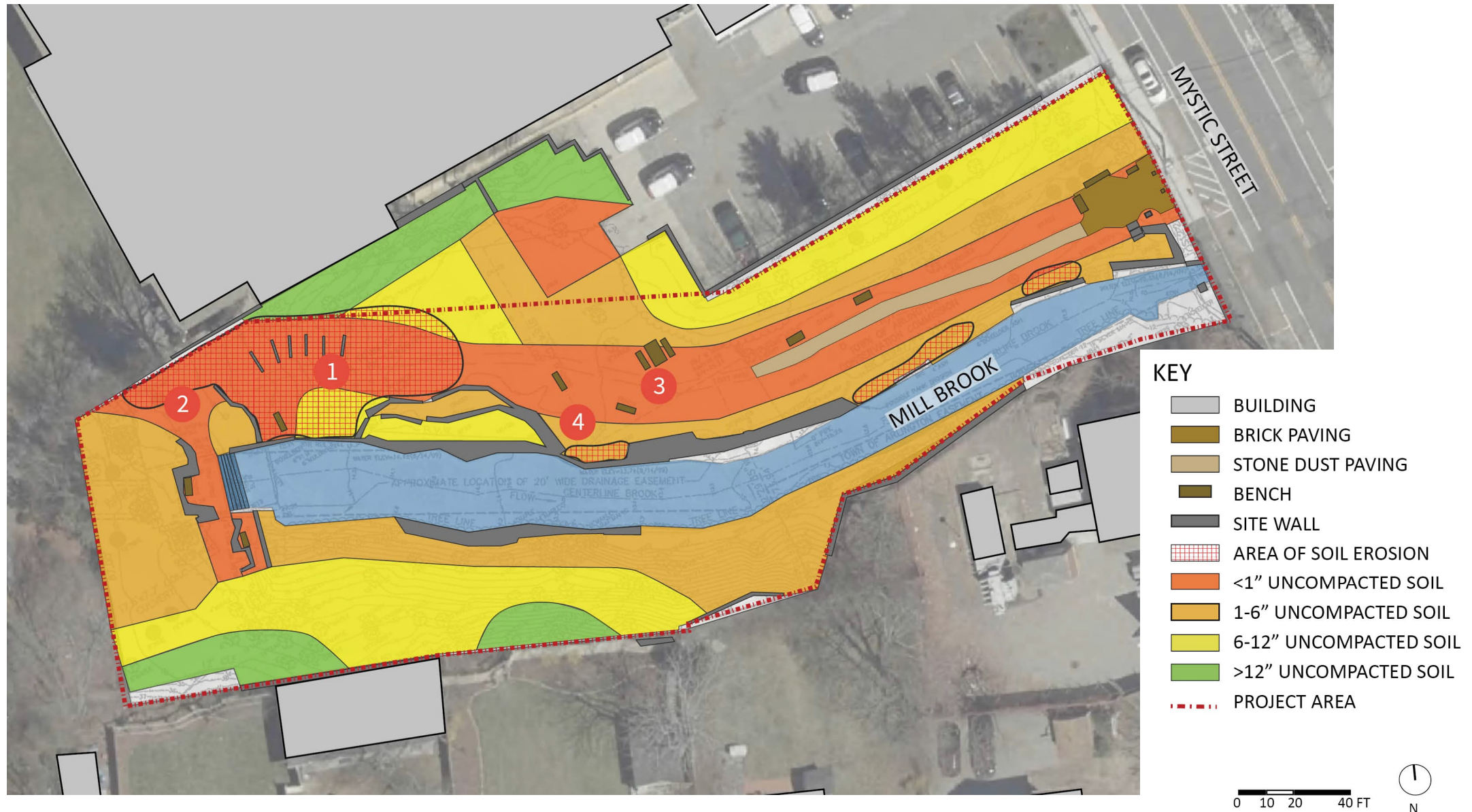
0 10 20 40 FT



Slope Aspect Plan



Soil Compaction & Erosion Plan



Soil Compaction & Erosion Photos



1 Granite Treads Near Field



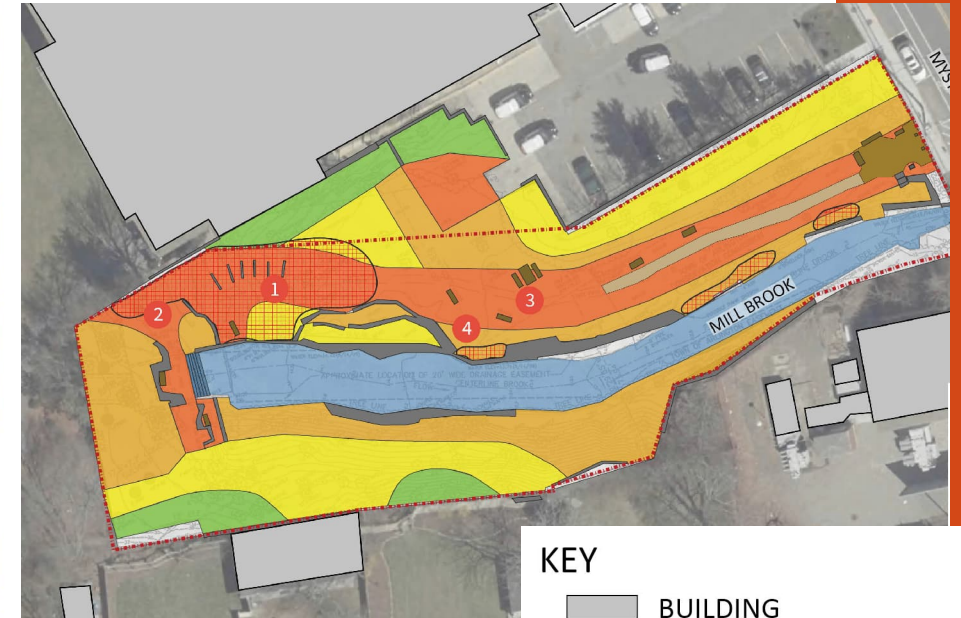
3 Surface Runoff



2 Top of Slope at Falls



4 Erosion and Soil Settlement along Mill Brook



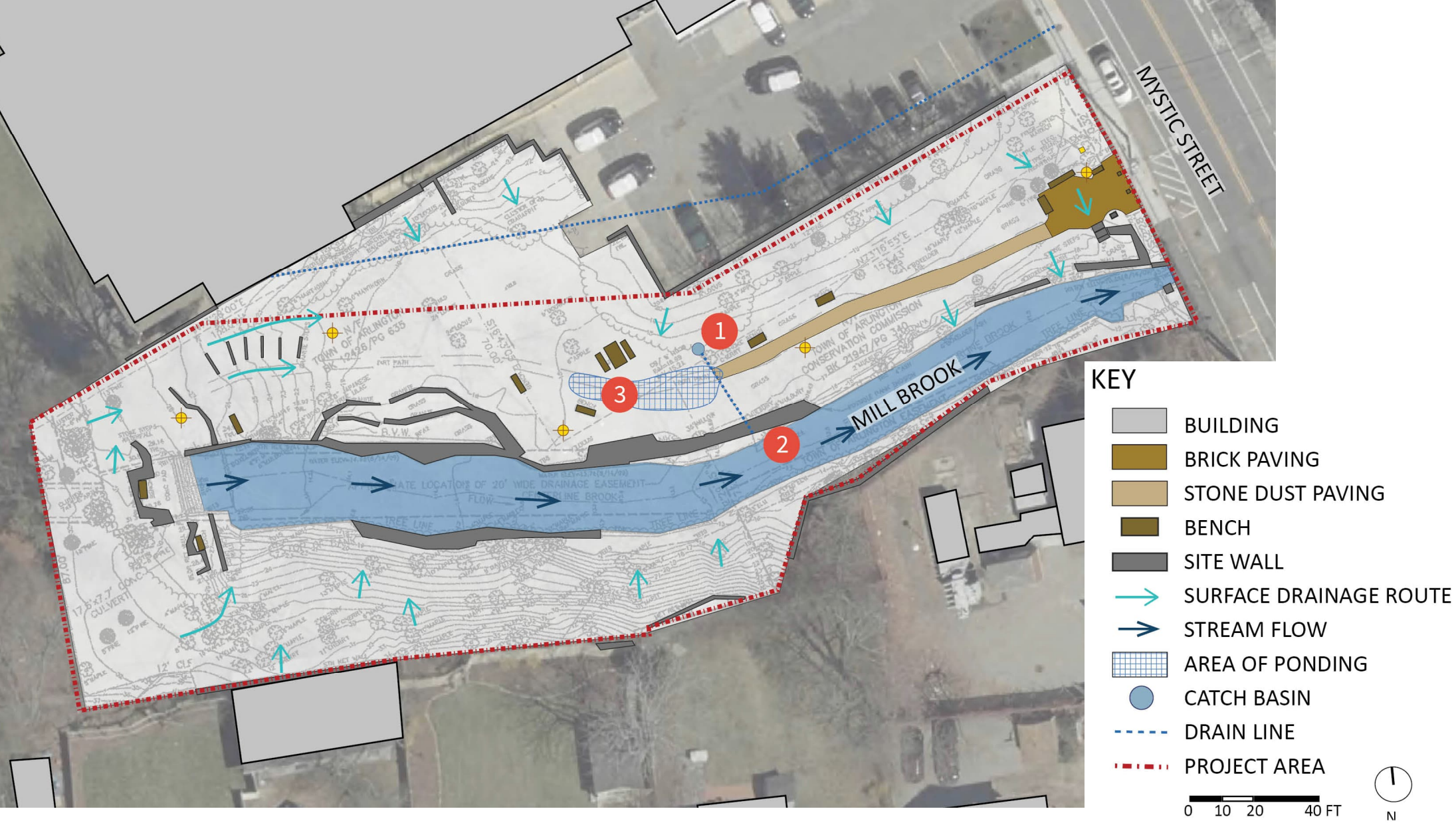
KEY

- BUILDING
- BRICK PAVING
- STONE DUST PAVING
- BENCH
- SITE WALL
- AREA OF SOIL EROSION
- <1" UNCOMPACTED SOIL
- 1-6" UNCOMPACTED SOIL
- 6-12" UNCOMPACTED SOIL
- >12" UNCOMPACTED SOIL
- PROJECT AREA

0 10 20 40 FT



Surface Hydrology



Surface Hydrology



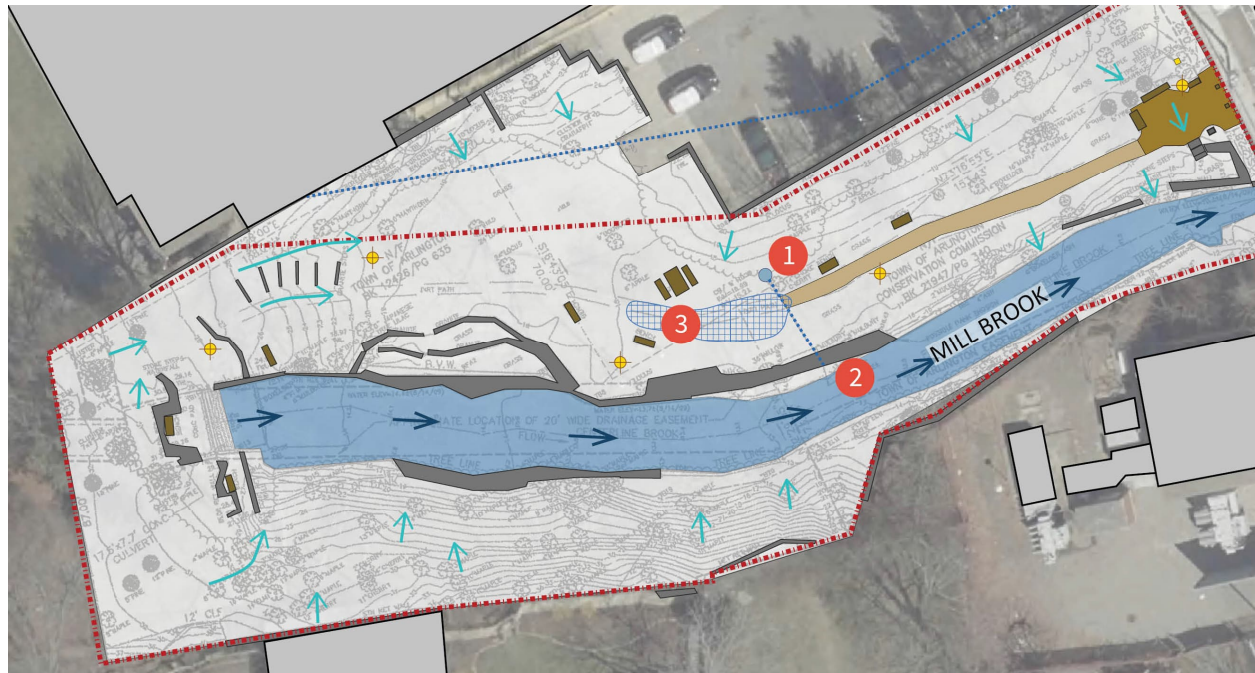
1 Swale Between Path and Parking Lot Edge





2 Swale Catch Basin Pipe Outfall to Brook



3 Ponding and Surface Runoff Near Picnic Table



KEY

-  BUILDING
-  BRICK PAVING
-  STONE DUST PAVING
-  BENCH
-  SITE WALL
-  SURFACE DRAINAGE ROUTE
-  STREAM FLOW
-  AREA OF PONDING
-  CATCH BASIN
-  DRAIN LINE
-  PROJECT AREA

0 10 20 40 FT



Native Vegetation



American Basswood - Leaves



American Basswood - Bark



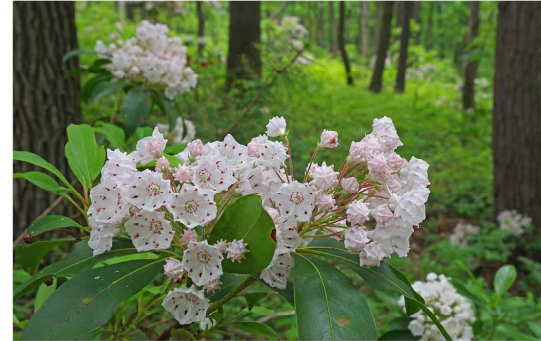
Slippery Elm - Leaves



Black Cherry - Leaves



Black Cherry - Bark



Mountain Laurel



White Pine - Needles



White Pine - Growth Form



Slippery Elm - Bark

Invasive Vegetation



Garlic Mustard - MIPAG Invasive



Japanese Knotweed -MIPAG Invasive



Bittersweet - MIPAG Invasive



Bittersweet - Berries



Norway Maple - MIPAG Invasive



Norway Maple - Bark



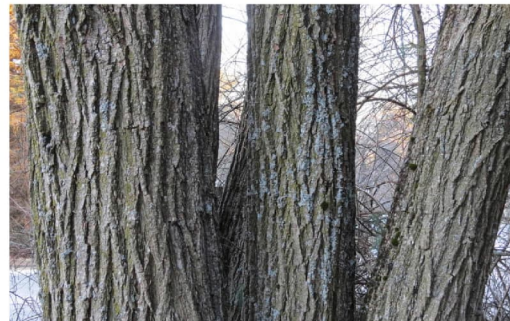
Amur Honeysuckle - MIPAG Potentially Invasive



Buckthorn - MIPAG Invasive



Black Locust - MIPAG Invasive



Black Locust - Bark



Multiflora Rose - MIPAG Invasive



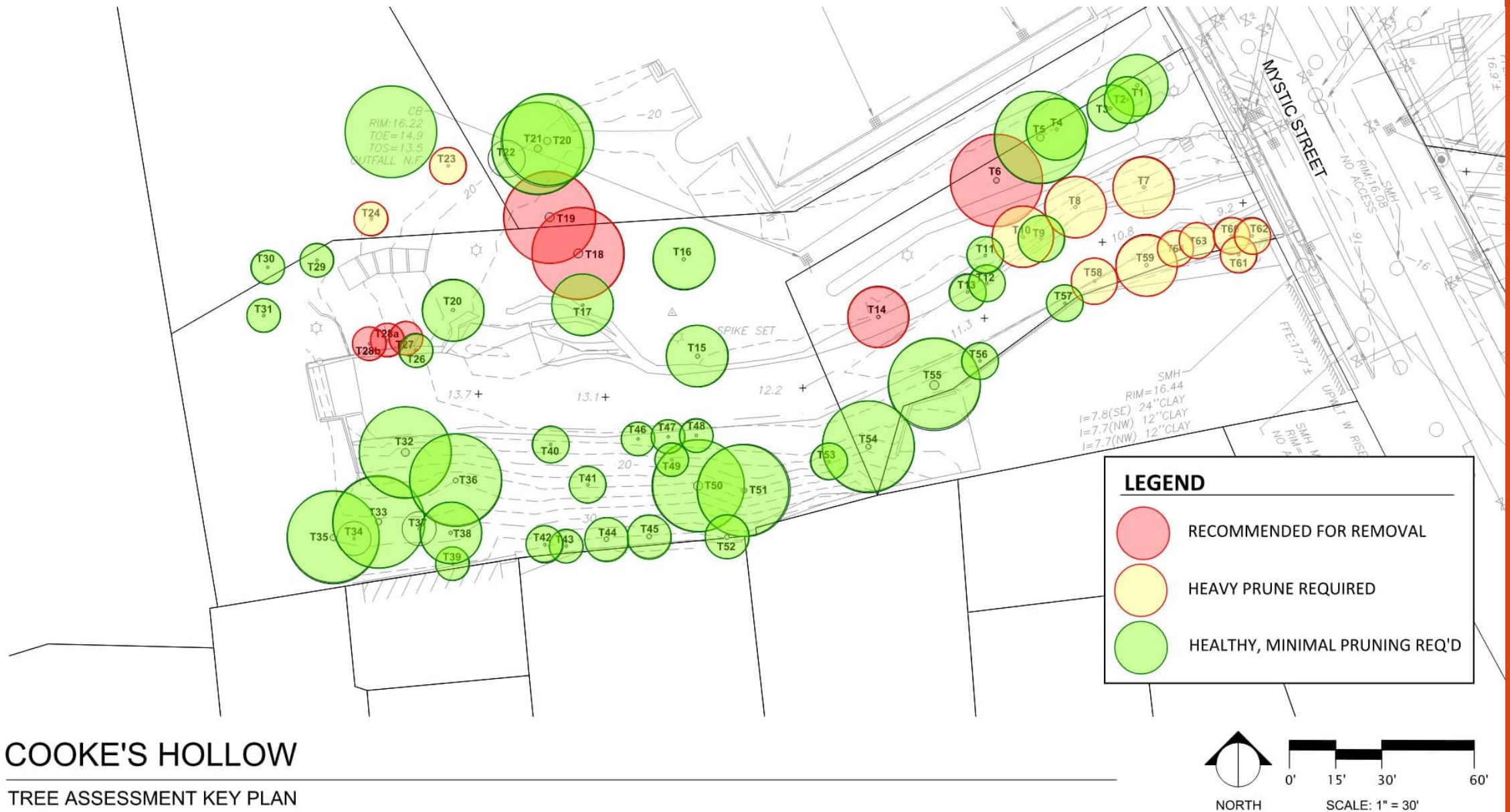
Mulberry - MIPAG Evaluated

Tree Assessment Overview

- Trees 6" and above were assessed (68 Total).
- 7 Trees recommended for removal (Hazards).
- 12 Trees require significant pruning to remove wisteria vine and hazardous leaders.
- 38% of all trees (>6") are state-listed invasive species.

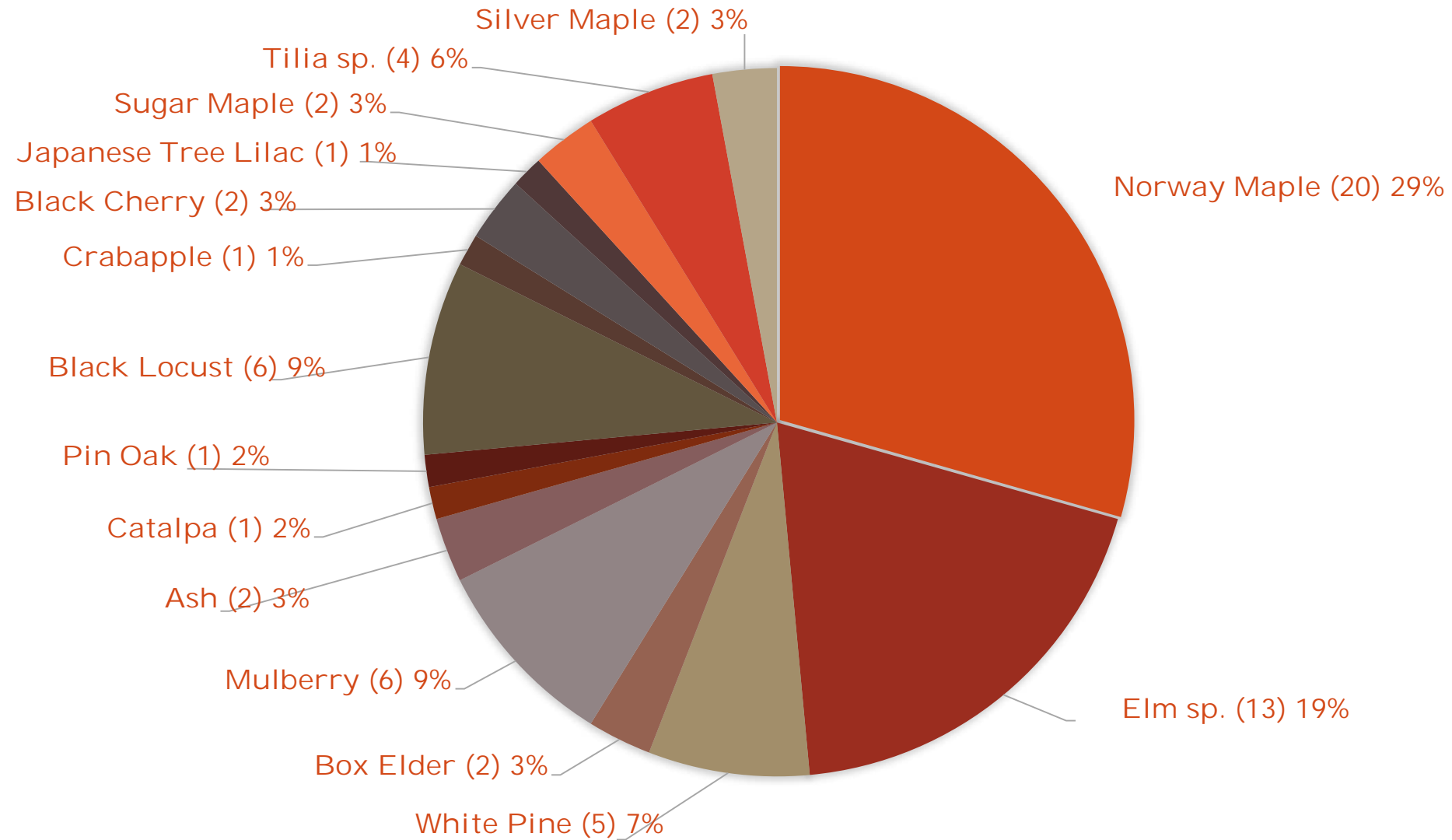


Tree Assessment Plan



Vegetation – Tree Statistics

SPECIES COMPOSITION (> 6" DBH)





1 Dedication Plaque



2 Entry Brick and Piers



3 5' Wide Path and Benches

Existing Conditions Photos





4 Granite Treads



5 Granite Retaining Edge



6 Chain Link Fence at SW Corner

Existing Conditions Photos



Existing Conditions Photos



7 View of the Falls



8 Stacked Granite Curb



9 Terraced Granite Curb



Site Entrance Enlargement Plan



1 Memorial Plaque



3 Granite Benches



2 Granite Entry Piers & Paving



4 Granite Boulder Wall



Site Entrance Enlargement Plan



5 Entrance Plantings



7 Electrical Meter



6 Granite Bench & Dog Sign



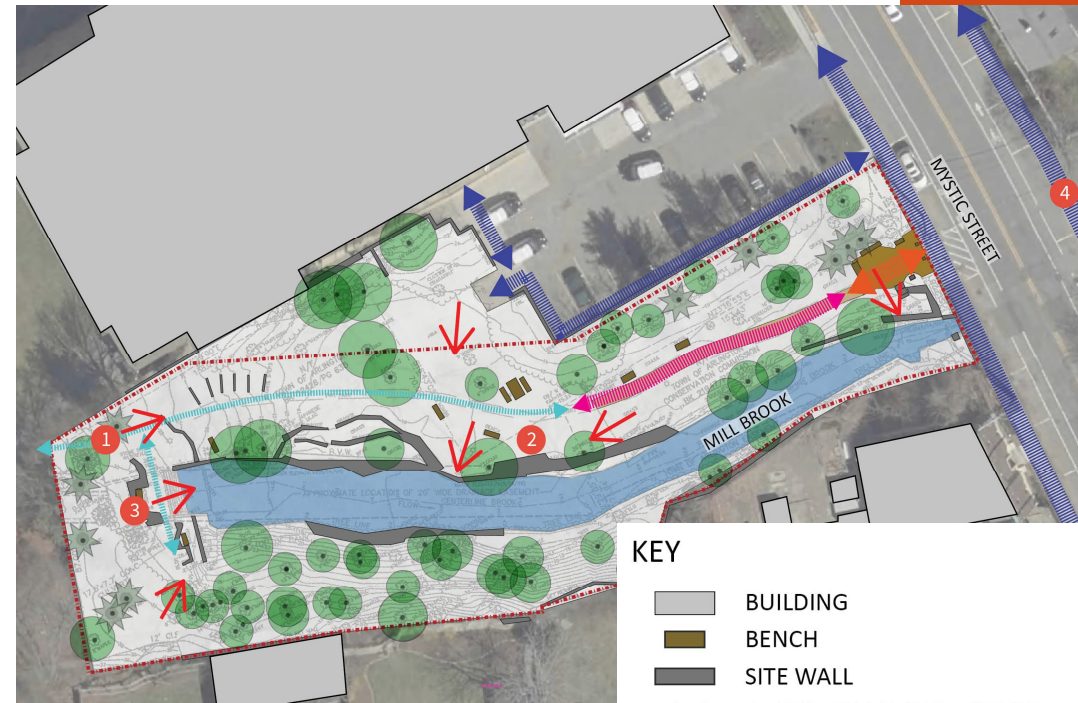
8 Brick to Stonedust Transition



Circulation and Views



Entrance View from Mystic Street



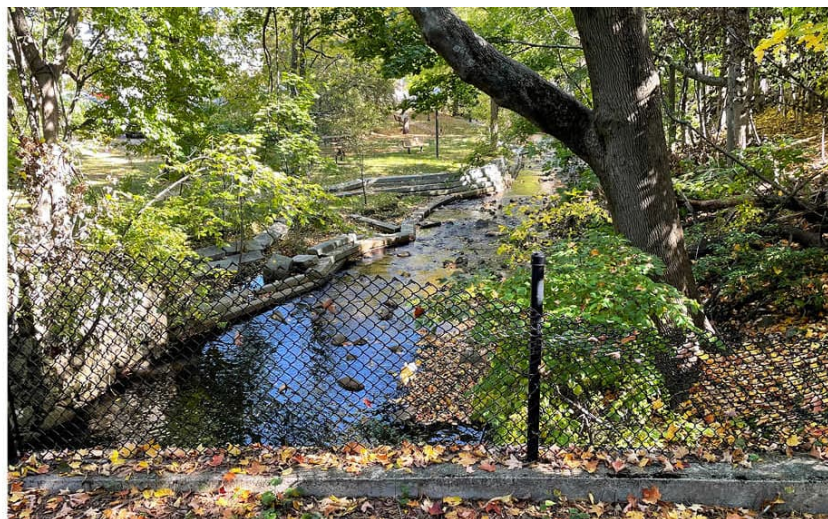
KEY

- BUILDING
- BENCH
- SITE WALL
- CONCRETE PAVING - 6' WIDE (ACCESSIBLE)
- BRICK PAVING - 16' WIDE (NOT ACCESSIBLE)
- STONE DUST PAVING - 5' WIDE (NOT ACCESSIBLE)
- NON PAVED PEDESTRIAN CIRCULATION (NOT ACCESSIBLE)
- VIEWS
- PROJECT AREA

0 10 20 40 FT



From Field Entrance Towards
Mystic Street



From Top of Falls Towards Mystic
Street

Fencing and Edge Conditions



1 Cusack Terrace Wall and Railing



2 Steel and Wooden Railing at Top of Falls













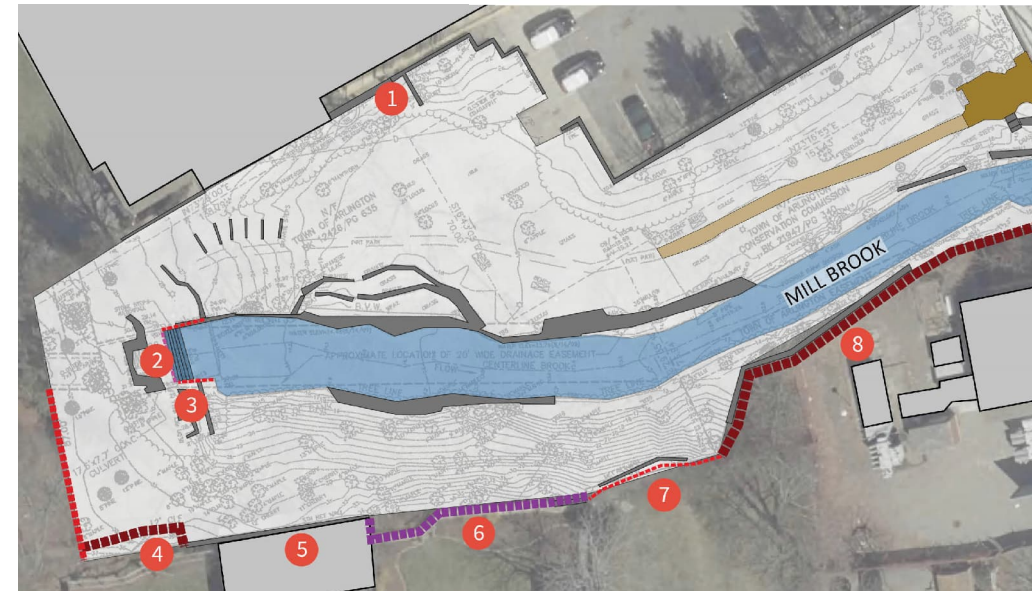
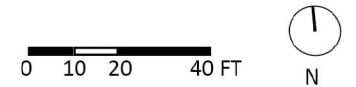
3 Black Chain Link Fence at Sides of Falls



4 Galvanized Chain Link Fence at Field

KEY

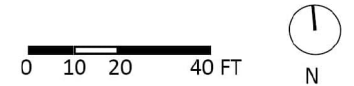
-  BUILDING
-  BRICK PAVING
-  STONE DUST PAVING
-  BENCH
-  SITE WALL
-  12' HT CHAIN LINK FENCE
-  8' HT CHAIN LINK FENCE
-  6' HT CHAIN LINK FENCE
-  6' HT VINYL PRIVACY FENCE
-  WOODEN GUARDRAIL



Fencing and Edge Conditions

KEY

- BUILDING
- BRICK PAVING
- STONE DUST PAVING
- BENCH
- SITE WALL
- 12' HT CHAIN LINK FENCE
- 8' HT CHAIN LINK FENCE
- 6' HT CHAIN LINK FENCE
- 6' HT VINYL PRIVACY FENCE
- WOODEN GUARDRAIL



5 Stone Wall and Building



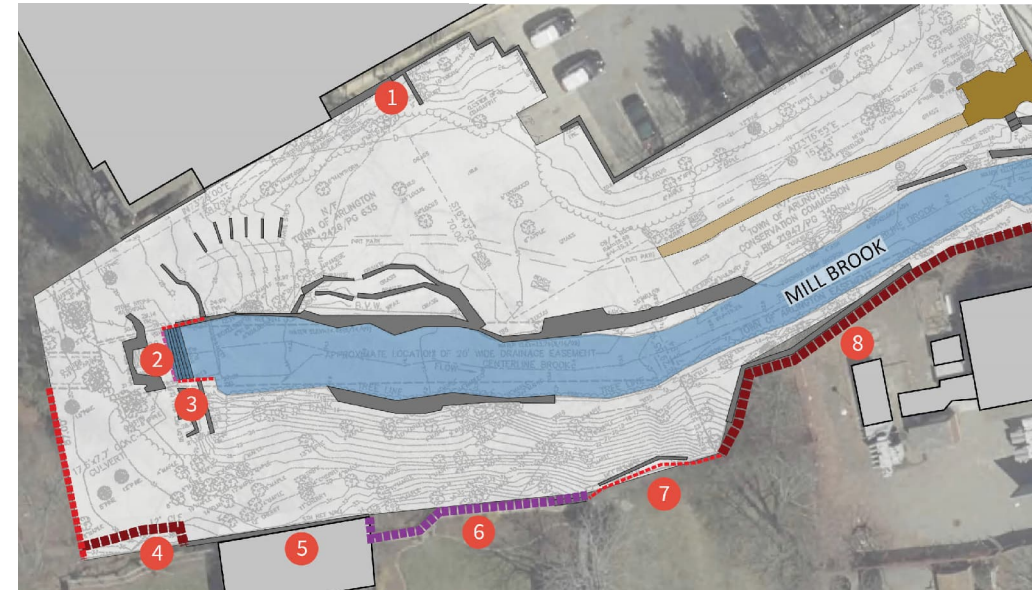
6 Privacy Fence



7 6' Chain Link Fence



8 12' Chain Link Fence & Wall



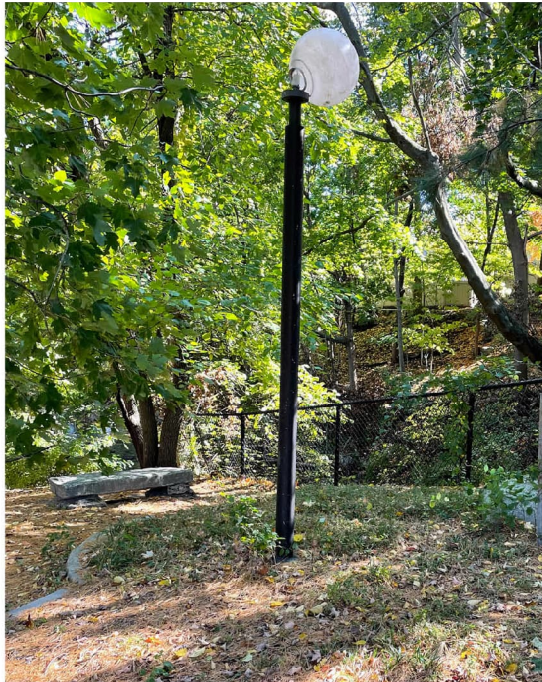
Site Furnishings



1 Granite Benches



2 Memorial Bench



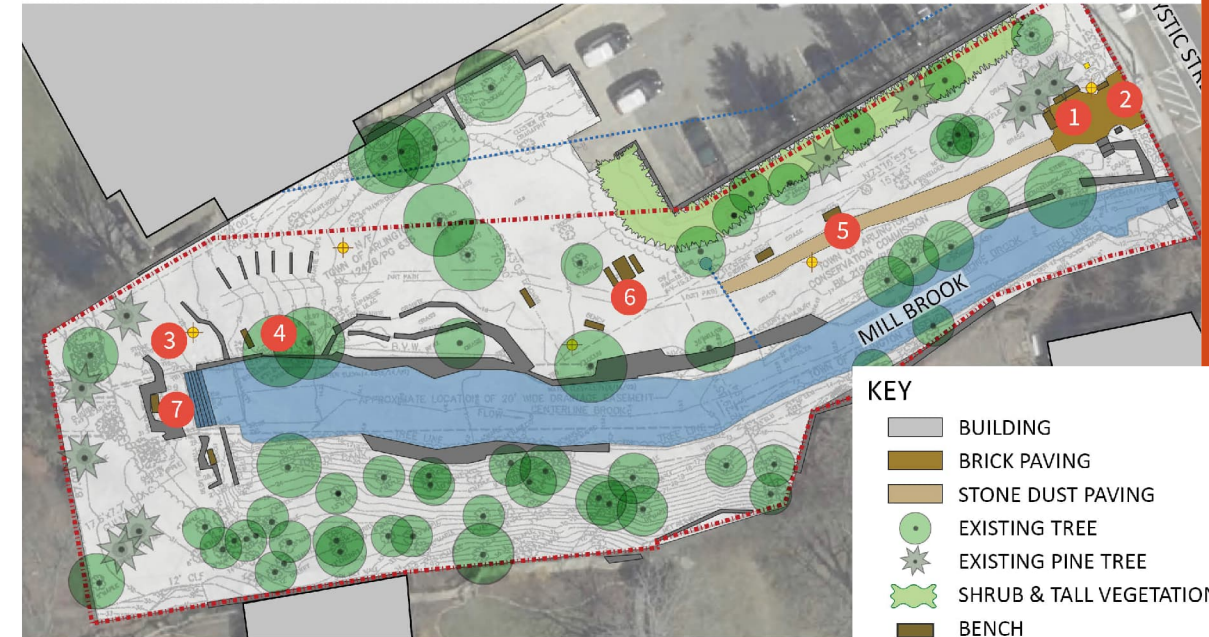
3 Globe Light Fixture



4 Granite Bench



5 Wooden Bench



6 Picnic Table



7 Granite Bench Above Falls

May Block Party Feedback

- Historic significance needs to be factored into the design
 - Cpt. George Cooke built first water mill 1637.
 - Last of (9) dams once present in Arlington.
- Valued meditative/contemplative space.
- Sound of running water should be buffered/amplified.
- A place to cool off in the summer (unique microclimate).
- Place to eat lunch or take a break during the workday.
- Frequent route for recreation walks/walking dogs.
- Great location to spectate/enjoy various wildlife (including ducks, heron, jays, possums, river herring).

Design Goals and Objectives

Formulate design approach based on site analysis data and community feedback, including:

1. Improve park circulation and universal accessibility.
2. Enhance park aesthetic and maintain historic character.
3. Improve perimeter buffers and preserve natural feel/sense of place.
4. Unified aesthetic of site furnishings (signage, lighting, benches, etc.).
5. Address dominant invasive tree canopy.
6. Add native plantings and improve wildlife habitat.
7. Evaluate opportunities for green infrastructure and drainage improvements to mitigate the effects of flooding and climate change especially extreme heat .

Review of Challenging Site Features

- Narrow Pedestrian Corridor.
- Steep Slopes and Potential for Erosion.
- Steep Slopes Regarding ADA Compliance.
- North-facing Slope Aspect and Microclimate Conditions.
- Localized Flooding.
- Dominant Invasive Tree Canopy.

Preliminary Concept Design Elements

1. Park Entrance and Site Furnishings
2. Circulation, Pathways and Accessibility
3. Seating Area Above the Falls
4. Signage
5. Site Lighting
6. Stormwater Management
7. Invasive Plant Management
8. Native Plantings & Restoration
9. Noise and Light Abatement

1. Park Entrance and Site Furnishings



Park Entrance and Site Furnishings - Concept Elements

Alternative 1 (Nature-based)

- Less “formal” entrance; replace brick with utilitarian material.
- Keep granite pillars.
- Relocate seating area/stone benches to “contemplative space closer to falls”.
- Recharacterize raised planter; memorial to remain.
- Add bike rack at entrance.
- Replace trash receptacle.

Alternative 2 (Traditional)

- Keep benches/seating area, granite pillars; add bike rack(s).
- Rehabilitate brick surface at entrance to meet ADA-compliance.
- Create formal entrance at ACHS field.
- Add bottle filling station with pet fountain near main entrance.
- Add more picnic tables and seating options within park.
- Memorial to remain.

Entrance and Site Furnishings



Mystic Street Entrance



Accessible Picnic Table



Hydration Station

2. Pathways and Accessibility



Pathways and Accessibility - Concept Elements

Alternative 1 (Nature-based)

- Existing path width (5'-0") to remain.
- Provide ADA-compliant path to base of falls; non-compliant path to ACHS athletic fields.
- Redesign benches and picnic tables for accessibility.
- Less formal open connection to field.

Alternative 2 (Traditional)

- Expand path width to 6'-0".
- Provide ADA-compliant path to ACHS athletic fields.
- Redesign benches and picnic tables for accessibility.
- Stepped path extension toward field.

Accessibility Guidelines – Trails vs. Paths

Trails

1. Comply with Forest Service Trail Accessibility Guidelines (FSTAG).
2. Maximum Slopes can be greater than 5% for shorter distances (as show below).
3. Surface material must be firm and stable.

Pathways

1. Comply with Americans with Disabilities Act Accessibility Standards (ADA).
2. Maximum permitted slope of 5.0%.
3. Surface material must be firm and stable.

Table 7.4.3.1 Trail Running Slope (Grade) and Resting Intervals

Running Slope of Trail Segment		Maximum Length of Segment Between Resting Intervals
Steeper Than	But Not Steeper Than	
1:20 (5 percent)	1:12 (8.33 percent)	200 feet (61 m)
1:12 (8.33 percent)	1:10 (10 percent)	30 feet (9 m)
1:10 (10 percent)	1:8 (12 percent)	10 feet (3050 mm)

Accessibility



Eroded Stairs from Field

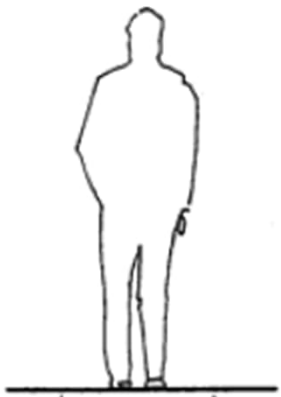


Upper Entrance toward Field

Circulation and Proposed Alignments

1. Aim to achieve proposed alignments that keep pathway surface under 5% slope to top of falls.
2. If 5% slope cannot be achieved, consider ramp system.
3. Pursue layouts and alignments that limit impacts on the resource areas.
4. Consider materials, alignments and construction techniques that will be more resilient to flooding and effects of climate change.

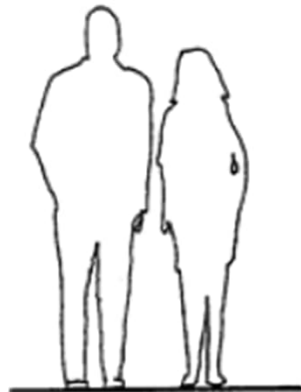
Considering Path Widths



2'-6"
Single
Pedestrian



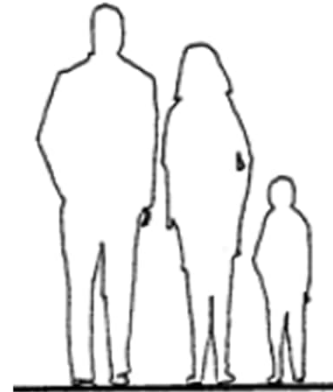
3'-0"
Single
Wheelchair



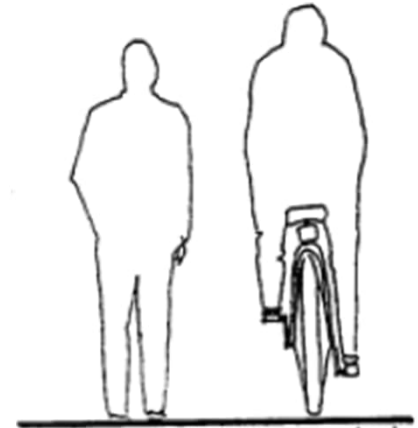
4'-6"
Two
Pedestrians



5'-6"
Pedestrian &
Wheelchair



6'-3"
Three
Pedestrians



6'-6"
One Pedestrian
One Bicycle

Pathway Surfacing Alternatives

Porous Bituminous Concrete

1. ADA-compliant
2. Cost: Low
3. Maintenance: Medium
4. Local Examples:
 - Wellington Park
 - Perimeter Road, Fresh Pond Reservation, Cambridge



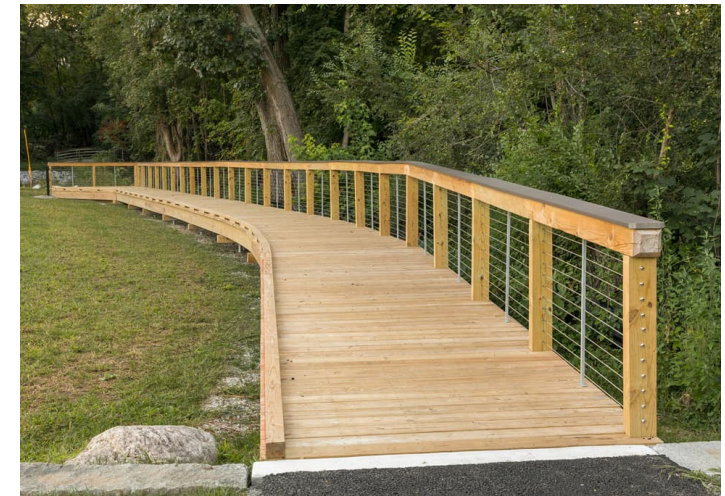
Flexible Porous Paving

1. ADA-compliant
2. Cost: High
3. Maintenance: Medium
4. Local Examples:
 - Spy Pond Park, Arlington
 - Kingsley Park & Black's Nook Pond, Fresh Pond Reservation



Timber Boardwalk

1. ADA-compliant
2. Cost: High
3. Maintenance: Replacement
4. Local Examples:
 - Wellington Park
 - Spy Pond Park, Arlington



Pathway Surfacing Alternatives (contd)

Bituminous Concrete

1. ADA-compliant
2. Cost: Low
3. Maintenance: Low
4. Issues:
 - Not porous and would not help to reduce heat-island effect or effects of flooding



Stabilized Aggregate

1. ADA-compliant
2. Cost: Medium
3. Maintenance: Medium
4. Issues:
 - Not porous.
 - Performs poorly in areas prone to flooding.
 - Performs poorly in areas of dense shade.
 - Performs poorly on steeper slopes.



3. Noise and Light Abatement



Noise and Light Abatement – Concept Elements

Alternative 1 (Nature-based)

- Incorporate “green walls” with existing retaining walls.
- Plant evergreen species adjacent to parking lot and retaining walls.
- Reduce/redirect glare from existing wall and parking lot lights.

Alternative 2 (Traditional)

- Incorporate “green walls” with existing retaining walls.
- Plant evergreen species adjacent to parking lot and retaining walls.
- Add opaque fence along Eversource building.

Noise and Light Abatement



Green Screens

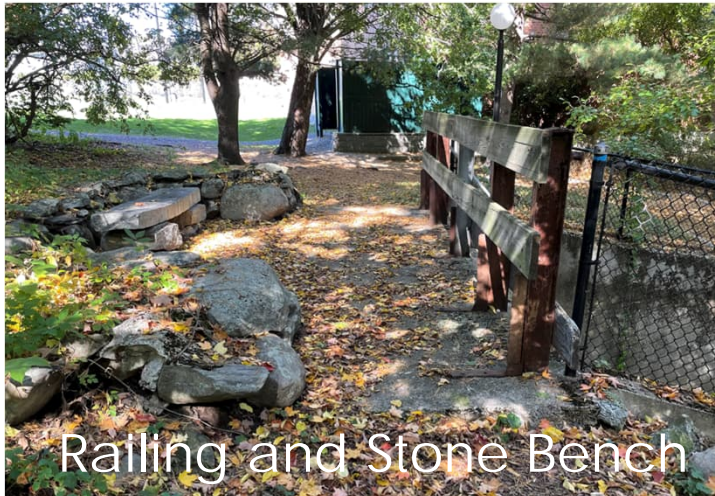
4. Seating Area Above the Falls



Seating Area Above the Falls – Concept Elements

Alternative 1 (Nature-based)

- Replace railing with contemporary style.
- Remove invasives; replace with native understory plantings.
- Remove existing chain link fence on western property line.



Railing and Stone Bench

Alternative 2 (Traditional)

- Replace railing with historic style.
- Enlarge ADA compliant seating area.
- Remove invasives; keep existing understory plantings.
- Replace existing chain link fence on western property line.



Stone Bench Nook

5. Signage



Signage – Concept Elements

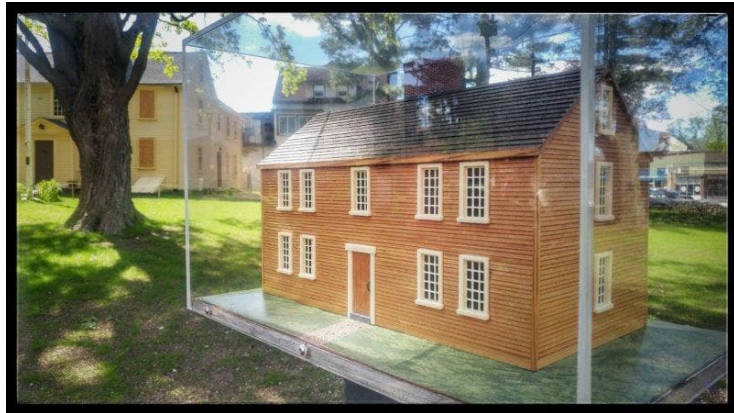
Alternative 1 (Nature-based)

- Subdued sign at entrance (granite engraving with black lithochrome).
- Limit new signage to Mystic Street entrance.
- Consider “digital” signage thru phone app.

Alternative 2 (Traditional)

- Add signage to supplement mill history.
- Consider interpretive historic element (at entrance) like mill in a box.
- Add formal park signage at ACHS entrance (inc. Buzzell Field and corridor path system).

Signage and Interpretive Examples



Plexiglass encased model of the mill



Interpretive engravings



National Parks sign stand

6. Site Lighting



Site Lighting – Concept Elements

Alternative 1 (Nature-based)

- No site lighting proposed within park.
- Consider supplemental lighting at entrance(s).

Alternative 2 (Traditional)

- Install pedestrian-based lighting (pole or bollard style) within park (energy efficient and on timers for seasonal use).

Site Lighting

*LED energy efficient and on timers for seasonal use



LED Bollard



LED Pole Light



Existing Light Pole with White Globe

7. Stormwater Management



Stormwater Management – Concept Elements

Alternative 1 (Nature-based)

- Utilize porous paving for paths and permeable pavers at park entrance(s)
- Disconnect stormwater pipe to Mill Brook; rehabilitate bioretention swale to clean and store runoff.
- Amend existing soils to promote infiltration and reduce runoff..

Alternative 2 (Traditional)

- Amend existing soils to promote infiltration and reduce runoff.

Stormwater Management

Infiltration Swale Systems:

1. Green Infrastructure Practice
2. Improves Water Quality
3. Reduction in Surface Runoff and Sedimentation into Mill Brook



Permeable
Pavers



Existing Swale along Parking Lot

8. Invasive Plant Management



Invasive Plant Management - Concept Elements

Alternative 1 (Nature-based)

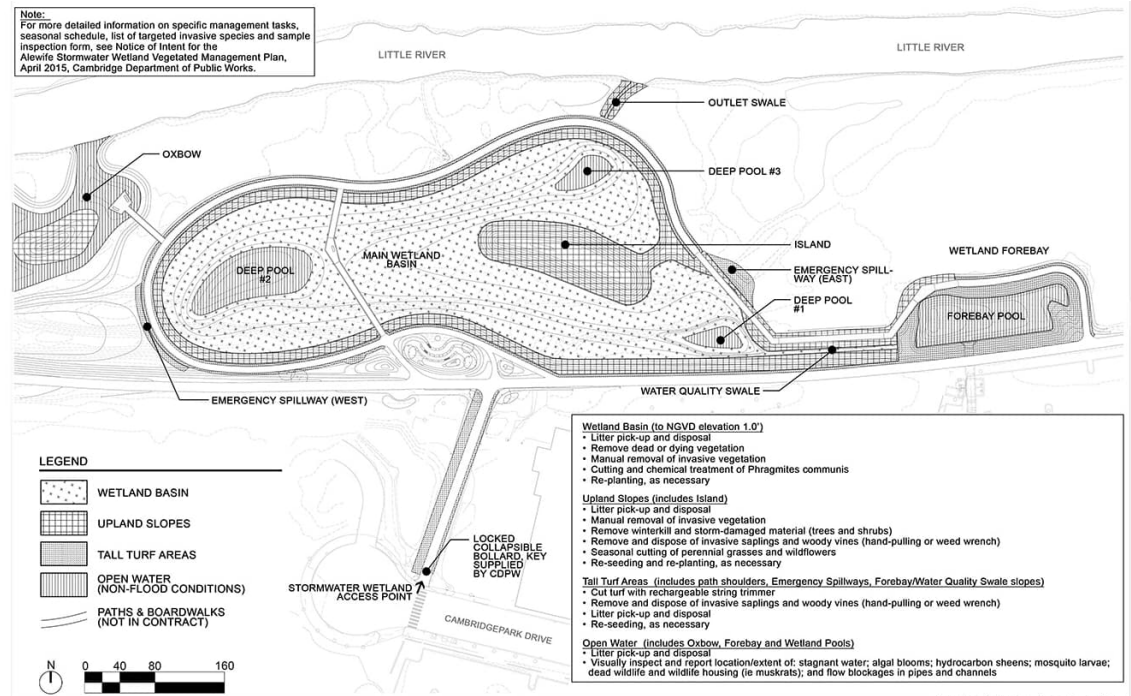
- Remove all state-listed invasive species, including mature black locust and Norway maple trees.
- Include phased approach to removals (Adaptive Management Strategies).

Alternative 2 (Traditional)

- Remove all state-listed invasive species, excluding all mature black locust and Norway maple trees.
- Limit invasive removals on steep bank and along Mill Brook.

Invasive Plant Management

1. Develop Vegetation Management Plan.
2. Target Existing Invasive Species.
3. Focus on Manual and Mechanical Techniques (Non-Chemical).
4. Work with Volunteers, Town Recreation and Public Works for Support.



9. Planting



Planting – Concept Elements

Alternative 1 (Nature-based)

- Based on Boston Basin Ecoregion plant communities.
- Straight species; no cultivars.
- Add buffer plantings to ACHS field.
- Buffer plantings/fence screening at Eversource building.
- Identify volunteer opportunities for planting/plant management.

Alternative 2 (Traditional)

- Add buffer plantings along ACSB parking lot edge.
- Add buffer plantings to ACHS field.
- Consider non-native climate adaptive species.
- Identify volunteer opportunities for planting/plant management.

Planting Strategy (Example)

1. Replicate Natural Communities Indigenous to Mystic River Watershed
2. Restoration of Riparian Floodplain Forest
3. Woodland Understory (Upland)
4. Natural Grassland Habitat (Upland)
5. Native, Non-cultivar Species
6. Highly Adaptive Plants–Minimize Maintenance

High-terrace Floodplain Forest

State Rank: S2 - Imperiled



High-terrace Floodplain Forest with mixed herbaceous layer and floodline visible on the nearest tree. Photo: Jennifer Kearsley, NHESP.

Description: High-terrace Floodplain Forests occur on raised banks adjacent to rivers and streams, on steep banks bordering high-gradient rivers in the western parts of the state, on high alluvial terraces, and on raised areas within major-river and small-river floodplain forests. In general, these communities are within the 100-year flood zone of rivers, so are river influenced, but they typically are not flooded annually as indicated by the presence of a distinct surface soil organic layer. Soils are typically silt loams. As with other types of floodplain forests and Rich, Mesic Forests, the rich soils and moist conditions make disturbed areas in them prone to invasions by exotic plant species.

Characteristic Species: These floodplain forests typically have species from lower floodplain forests mixed with species from mesic, upland forests. The canopy may include red, silver, and sugar maples, birches, hickories, ashes, butternut, sycamore, cottonwood, black

High-Terrace Floodplain Forests are deciduous hardwood forests that occur along riverbanks, above the zone of annual flooding. Although they do not flood annually, they flood often enough for the soil to be moderately enriched.

cherry, basswood, and elms. An open subcanopy usually includes ironwood and canopy species. The shrub layer varies from sparse to well-developed with arrowwood, nannyberry, and winterberry commonly mixed with invasive non-native shrubs including multiflora rose, Japanese knotweed, Japanese barberry, and buckthorns. The herbaceous layer is a mixture of the characteristic floodplain forest plants - sensitive fern, ostrich fern, and wood-nettle - and rich upland herbs, such as lady fern, zigzag goldenrod, white snakeroot, jack-in-the-pulpit, and bellwort. Native and non-native vines can be very dense in places.



High-terrace Floodplain Forest with dense barberry patches in the otherwise diverse understory. Photo: Patricia Swain, NHESP.

Differentiating from Related Communities:

Occurrences of High-terrace Floodplain Forests tend to be relatively small narrow forests on high alluvial terraces that flood only occasionally (not annually) and for a shorter duration than other types of floodplain forests. Less flooding typically results in more structural and species diversity than found in other floodplain forests.

High-terrace Floodplain Forests are most closely related to the Transitional Floodplain Forests, Small-river Floodplain Forests, and Rich, Mesic Forests. They are sometimes seen as a hybrid between floodplain and upland forests as the vegetation composition of all layers of this forest type shares species with other floodplain forests and with Rich, Mesic Forests (for example, silver and red maple grow with sugar maple, ostrich fern with lady fern). They have more litter accumulated than other floodplain forests. Alluvial Red Maple Swamps along low-gradient rivers flood annually and are slow to drain. Silver maple is often a codominant with red maple. Alluvial Hardwood Flats are along small streams that have multiple short flooding events throughout the year after storms. Black cherry and white pine are usually abundant in the canopy with red maple, but not silver maple.

Habitat for Associated Fauna: High-terrace Floodplain Forests can contain low wet depressions that function



as vernal pools and provide important amphibian breeding habitat. Being small communities, they are part of the habitat of the wide ranging riverine and upland animals.

Examples with Public Access: George L. Darey Housatonic WMA, Lenox; Knightville WMA, Huntington and Chesterfield; Arcadia WS (MAS), Northampton; Bolton Flats WMA, Bolton and Lancaster.



High-terrace Floodplain Forest with diverse canopy and herbaceous layers. Photo: Michael Batcher.



From: *Classification of Natural Communities of Massachusetts* <http://www.mass.gov/nhesp/>
Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife, 1 Rabbit Hill Rd., Westborough, MA 01581

Updated: 2016
(508) 389-6360

Riparian Floodplain Community

Canopy Trees

1. *Acer rubrum* (red maple)
2. *Quercus bicolor* (swamp white oak)
3. *Betula nigra* (river birch)
4. *Ulmus americana* (American elm)



Riparian Floodplain Community

Shrubs and Groundcovers

1. *Lindera benzoin*
(spicebush)
2. *Cornus amomum*
(silky dogwood)
1. *Ilex verticillata*
(winterberry)
2. *Viburnum dentatum*
(arrowwood)
3. *Spiraea alba*
(meadowsweet)
4. *Clethra alnifolia*
(summersweet)
5. *Onoclea sensibilis*
(sensitive fern)



Woodland Understory – Trees/Shrubs

1. *Cornus florida*
(flowering dogwood)

2. *Lindera benzoin*
(spicebush)

3. *Cornus racemosa*
(gray dogwood)

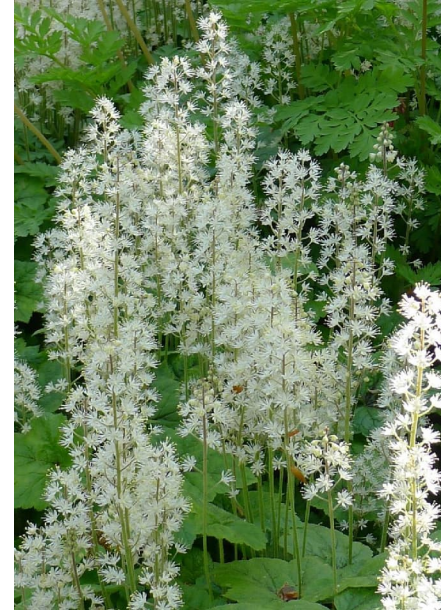
4. *Viburnum dentatum*
(arrowwood)

5. *Hamamelis virginiana*
(witchhazel)



Woodland Understory - Groundcovers

1. *Carex pennsylvanica*
(Pennsylvania sedge)
2. *Tiarella cordifolia*
(foamflower)
3. *Asarum canadensis*
(Canadian wild ginger)
4. *Eurybia divaricata*
(white wood aster)
5. *Dryopteris marginalis*
(marginal woodfern)
6. *Pteridium aquilinum*
(bracken fern)



Next Steps

1. June 23, Public Meeting #2 Feedback Deadline
2. June/July, Develop (2) Concept Plans
3. Mid-July, Public Meeting #3 (Concept Plans)
4. Late July, Submit Feasibility/Preliminary Design Report to the Town (Site Analysis and Concept Alternatives)

THANK YOU! Please provide feedback

- Town of Arlington Contact:
DMORGAN@TOWN.ARLINGTON.MA.US
- For more information and a project survey visit:

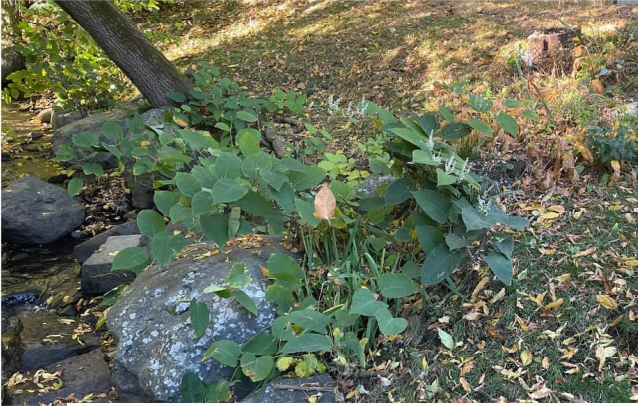
[Town Plans to Revitalize Cooke's Hollow | Planning News and Notices | Town of Arlington \(arlingtonma.gov\)](#)

<https://www.arlingtonma.gov/Home/Components/News/News/13341/2651?backlist=%2fdepartments%2fplanning-community-development>

- 2010 Concept Design



Vegetation



1 Japanese Knotweed



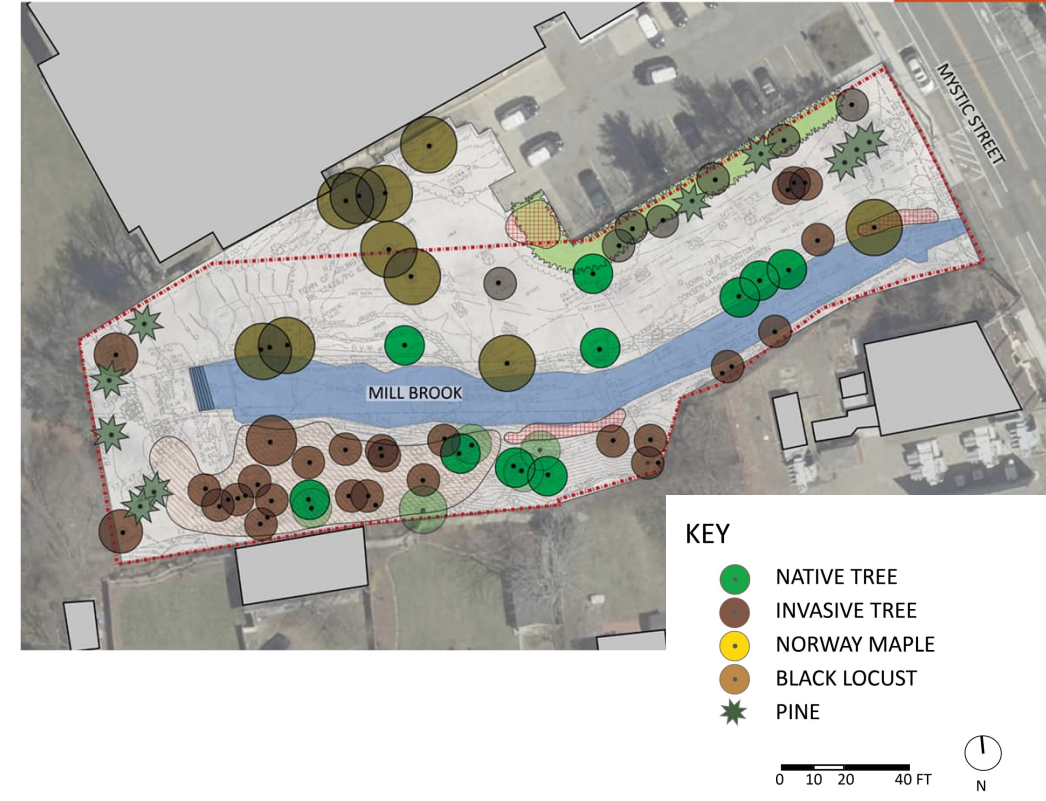
2 Native Mountain Laurel



3 Norway Maple Canopy



4 Mature Black Locust Trees



Vegetation – Shrubs and Groundcover

